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An exploration of the relationship of oral sex and HIV transmission among gay and bisexual men

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AN EXPLORATION OF THE RELATIONSHIP OF ORAL SEX AND HIV TRANSMISSION AMONG GAY AND BISEXUAL MEN

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ABSTRACT

AN EXPLORATION OF THE RELATIONSHIP OF ORAL SEX AND HIV TRANSMISSION AMONG GAY AND BISEXUAL MEN

by Andrew A. Gans

This case finding study interviewed twelve gay and bisexual men who believed they were infected with HIV through oral sex. Personal histories were reviewed to rule out alternative routes of infection including blood contact, needle sharing, and anal or vaginal intercourse. Upon analysis, five men were found to have no other risk factors and were determined to be cases of oral sex transmission. Three men had engaged in some high risk behaviors and were categorized as likely cases. Through the interviews, other risk factors emerged in the histories of the four remaining individuals.

The study examined which specific oral sex activities were associated with the cases. In addition, potential risk co-factors such as oral and dental problems, history of sexually transmitted diseases, number of sexual partners and substance use were examined. The case finding methodology and results are reported, along with implications for education, counseling, and future research.

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This study is dedicated to the twelve participants who had the courage and caring to come forward and share their stories. Thank you. I wish you all health, happiness, and luck in the future!

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CHAPTER 1

PURPOSE

Sexual activity is the most common method of transmission of the Human Immunodeficiency Virus (HIV) which causes AIDS. While anal and vaginal intercourse have been well documented as high risk sexual activities, little research has examined the possibility of HIV transmission through oral sex. Since research into this transmission mode is so limited, and the existing studies have examined only a handful of cases, many questions remain about the relative risk of HIV infection through oral sex. Increasing numbers of anecdotal reports of infection through oral sex alone indicate that this may be an important area for exploratory, case-finding research.

The potential for oral sex transmission of HIV is particularly threatening to the gay and bisexual male population for two reasons. First, many gay and bisexual men are already infected with HIV. Second, oral sex has often been adopted, if not advocated, as a seemingly safe alternative to the more risky anal and vaginal intercourse. Therefore, even if oral sex has a relatively low chance of allowing HIV transmission, it still poses a serious threat of new infection within this community already so hard hit by the AIDS epidemic.

This study examined transmission of HIV through oral sex to learn more about which specific activities might allow infection to take place. In addition, risk co-factors such as dental problems or substance use which may facilitate HIV transmission during oral sex were also studied. This information can be used in education and counseling about safer sexual behavior to prevent future

spread of the AIDS epidemic. In addition, the results of this study can provide the basis for further research on sexual transmission of HIV.

STATEMENT OF THE PROBLEM

The limited research on oral sex as a route of HIV transmission has led health educators to develop safer sex guidelines using their professional perceptions of risk. There is currently wide variation in the recommendations regarding oral sex. For example, the AIDS Committee of Toronto uses the slogan "sucking . . . it's safer than we thought." A poster describes that "if you suck, there's only a very small chance that you might catch HIV" and a brochure adds "it's *not impossible* to catch HIV from sucking - it's just *very, very unlikely*" (AIDS Committee of Toronto, 1988). In contrast, the American Association of Physicians for Human Rights (AAPHR) issued refined guidelines in 1990. All types of oral sex were rated as "some risk," with the following activities ranked in descending order of risk:

- oral sex with men with ejaculation and without a condom
- oral sex with women
- oral sex with men with pre-ejaculate and without a condom
- oral sex with men with no ejaculation or pre-ejaculate and without a condom
- oral sex with men with a condom. (Schram, 1990; UCSF AIDS Health Project, 1991).

While these guidelines from two AIDS service organizations differ dramatically, both are still used for education and counseling in the gay and bisexual community.

These contrasting safer sex guidelines were developed by generalizing what is known about other activities that allow HIV transmission. HIV is

transmitted from an infected person to a healthy one by the sharing of certain body fluids. Since blood, semen, and vaginal fluid have the highest concentrations of HIV, activities such as anal and vaginal sex that share these fluids are determined high risk for HIV transmission. Pre-ejaculatory fluid may also contain HIV, although no laboratory research has confirmed this possibility. By projecting this information onto oral sex, professionals have subjectively determined varying levels of risk.

The AAPHR guidelines reflect a more conservative view on the issue of oral sex and HIV transmission. These refined safer sex guidelines indicate that professionals believe that there is some risk of HIV transmission through oral sex, and that this risk varies by type of activity performed. However, differing guidelines send mixed messages to the community about both the amount of risk and the definition of safer sex.

The large cohort studies that have provided the basis for most safer sex guidelines (Detels et al., 1989; Kingsley et al., 1987; Winkelstein, Lyman, et al., 1987) are inconclusive on the topic of oral sex, because it is difficult to isolate a single sexual behavior from an individual's sexual history. These studies have found few individuals who were infected through oral sex, perhaps because the effects of such "lower risk" behaviors are overwhelmed by those of the well documented riskiest activities. As a result, these landmark studies of the AIDS epidemic have provided little evidence that transmission through oral sex is possible. They also do not provide relative risk ratios for different types of oral sex activities.

A handful of case reports have been published in the scientific literature about transmission of HIV through oral sex (Lifson et al., 1990; Mayer &

DeGruttola, 1987; Rozenbaum, Gharakhanian, Cardon, Duval, & Coulaud, 1988). However, since these reports are rare and involve unusual circumstances, they often raise more questions than answers. Anecdotal reports from anonymous HIV testing sites (ATS) and service organizations support these formative findings, yet have no way to validate their information or explore details of how transmission may have taken place.

While the existing safer sex guidelines were quite helpful in reducing transmission early in the epidemic, they may no longer be precise enough. When HIV first appeared in this country, transmission among gay and bisexual men was common since many were involved in high risk activities such as unprotected anal intercourse. Education efforts have led to dramatic decreases in these high risk behaviors (Martin, 1987; McKusick, Horstman, & Coates, 1985). As a result, for an increasing number of individuals unprotected oral sex is the most risky sexual activity.

As high risk sexual behaviors become more rare, transmission of HIV through oral sex may play a larger role in the incidence of new infection. With evidence that up to 50% of gay and bisexual men in some areas may already be infected with HIV (Winkelstein, Samuel, et al., 1987), we may see a new wave of HIV infection among those who have curtailed high risk activities such as anal or vaginal sex. Further study of oral sex transmission is urgently needed in order to provide consistent and scientifically based safer sex guidelines.

Since the effects of lower risk activities such as oral sex are hard to detect in large cohort studies of populations with numerous high risk factors present, a different methodology is needed to study this mode of HIV

transmission. Case finding allows close analysis of the details of a limited number of cases of infection in order to explore possibilities rather than test hypotheses.

This study sought to find gay or bisexual men with HIV who believe that they were infected through oral sex. In depth interviews with the subsequent sample (n=12) examined specific oral sex activities and co-factors. This exploration attempted to determine the legitimacy of the respondents' concern and illuminate the conditions around the possible oral sex transmission. It is hoped that these data will be used as the basis for improved education and contribute to the call for further research in this important area.

LIMITATIONS

This study faced certain limitations inherent in exploratory research design and methodology. Data were collected through in-person interviews with self-selected volunteers. These interviews were limited by their reliance on self-reporting of events from memory. Participants may have forgotten or chosen not to reveal certain sexual behaviors or high risk activities due to the social stigma involved. In addition, bias may have been introduced by subjects' knowledge of the topic of the study; subjects may have overemphasized certain activities while diminishing reports of behaviors believed to be irrelevant.

The study also relied on self-reporting of medical information since no physical examinations or HIV tests were given. Medical records and health care professionals were not consulted about the history of each subject.

Therefore, as with other personal information, the medical data was limited by the memory and openness of the participant.

While self-reporting was the largest limitation of this study design, steps were taken to obtain complete and accurate information. Participants were encouraged to review diaries and medical records before the interview to aid their memories and ensure that their chronological recall was accurate. In addition, volunteers were assured of confidentiality to decrease the tendency to omit sensitive or embarrassing details. Finally, key questions were repeated and a checklist used to ensure that all areas of personal history were discussed and confirmed.

The study also may have been biased by the opinions or formulation of interview questions of the researcher. To avoid such problems, the interview format and questions were tested and critiqued in a dry run interview with a social worker with experience in HIV/AIDS services. In addition, most interview topics were covered with open-ended, general questions, with more specific requests only for details or clarification. Finally, the interviews were tape recorded and transcribed for accuracy.

SIGNIFICANCE

Despite the limitations of the research design and methodology, this study has significance for research and education on HIV transmission. AIDS is an international epidemic touching a wide variety of populations. In the United States, gay and bisexual men have been hardest hit. The combined risk categories of "homosexual/bisexual male" and "homosexual/bisexual injection

drug user" represented over 63% of the 202,843 cases of AIDS in the U.S. diagnosed by the end of November 1991 (Centers for Disease Control, 1991). One study found that almost half the gay and bisexual men in one section of San Francisco were infected with HIV (Winkelstein, Samuel, et al., 1987).

Education in the gay and bisexual male community has led to incredible behavior changes to prevent new HIV infection. Studies have shown a dramatic decrease in the frequency of unprotected anal intercourse (Martin, 1987; McKusick, Horstman, & Coates, 1985). However, education and counseling often advocate oral sex as a safe or low risk alternative sexual activity. Due to the high prevalence of HIV infection among gay and bisexual men, activities such as oral sex that pose even a relatively small risk of transmission may lead to many new cases of infection.

While the risks of anal and vaginal intercourse for HIV transmission have been well documented, the relative risk of oral sex has not been discovered by the key studies of HIV infection. Further research is crucially needed both to quantify the relative risk of oral sex and to clarify the activities and conditions that allow infection. This study is an early step in the exploration of the relationship of oral sex and HIV infection. The results will identify areas for future research, while providing further information for education and counseling to help individuals choose safer behaviors and prevent new HIV infection.

CHAPTER 2

REVIEW OF THE LITERATURE

At the beginning of the AIDS epidemic in the United States, there was an urgent need to study HIV transmission and create prevention guidelines. While a few large cohort studies quickly isolated the major risk activities, some areas of transmission still have not been fully explored. Ten years into the AIDS epidemic a broad and diverse body of literature exists, particularly in such areas as clinical treatment. However, there is still little in the scientific literature on transmission through lower risk sexual activities such as oral sex. As a result, non-traditional sources, such as gay community newspapers and AIDS service provider newsletters, are often the best resource for such information.

Most of the research on HIV transmission has examined gay and bisexual men, since the high prevalence of HIV in this population makes it easier to study. A number of large cohort studies in this population clearly show that receptive and insertive anal intercourse pose the greatest risk. An unintended but important side effect of these findings is that significantly less research has addressed the lower risk routes of transmission, particularly oral sex. However, as safer sex guidelines and education decrease the practice of the riskiest activities, oral sex may play an increasingly important role in new HIV infections. While only a few case reports have appeared in the scientific literature, many anecdotal reports of probable oral sex transmission are emerging among service providers such as Anonymous Test Site (ATS) counselors.

Cohort Studies of Sexual Transmission

The largest and best-known cohort study of HIV transmission through sexual activity is the Multicenter AIDS Cohort Study (MACS) of gay and bisexual men (Detels et al., 1989; Kingsley et al., 1987). A total of 4,955 volunteers were recruited at four centers located in Baltimore, Chicago, Los Angeles, and Pittsburgh. The baseline interview, physical examination, and specimen collections were done in 1984 and 1985, with follow-up scheduled at 6 month intervals after baseline. Blood specimens were taken to check for HIV antibodies, and neither participant nor interviewer was aware of the participant's antibody status at the beginning of the study.

The first MACS report (Kingsley et al., 1987) found no evidence of transmission of HIV through oral sex. The 2,507 men who tested negative for HIV at entry to the study and who completed the first follow-up were interviewed. Each was asked about sexual activities during the 6 months prior to baseline as well as the 6 month follow-up period. Data was collected on receptive and insertive partners in oral-genital intercourse, oral-genital intercourse to ejaculation, anal intercourse, anal intercourse to ejaculation, and other activities. A total of 95 men seroconverted during the follow-up; in other words, these men tested negative for HIV antibodies at baseline and positive for antibodies 6 months later.

Results of the study clearly demonstrated that receptive anal intercourse was the most likely mode of HIV transmission, since it accounted for nearly all the new cases of infection. Only 9 of the 95 seroconverters did not practice receptive anal intercourse during the follow-up period, but 6 had done so in the 6 months before baseline. Since it may take up to 6 months for antibodies to

appear on a test after infection, these men may actually have been infected at baseline despite their negative test results. The three men who reported no receptive anal intercourse within the year all had anal intercourse as the insertive partner during both 6 month periods.

Only 147 men in the study practiced only oral intercourse, and none seroconverted on follow-up. Since no questions were asked about the infection status of partners, it is possible that these men were only rarely exposed to HIV positive partners. However, since they had a median of two partners (range 1-60) this seems unlikely. Therefore, this cohort study gave no specific evidence of risk of HIV transmission through oral sex.

A later report (Detels et al., 1989) from the MACS study found possible cases of transmission through oral sex. A total of 2,915 men with no evidence of HIV antibodies at baseline were followed for 2 years, and 232 seroconverted in that time. The greatest risk was again demonstrated to be related to receptive anal intercourse, with some risk attributable to insertive anal intercourse. It is important to note that transmission was assumed to be by means of anal intercourse if a participant engaged in that activity, regardless of any other sexual activities.

Detels et al. (1989) found two seroconverters who reported practicing no anal-genital intercourse in the 12 months prior to their first follow-up visit with a positive antibody test. The interval between last reported instance of anal intercourse and this positive test was over 11 months for one man and over 23 months for the other. Given that either could have seroconverted at the beginning of the interval (6 months prior to the test), seroconversion still took place at least 6 or 17 months after the last reported anal intercourse,

respectively. The first individual's seroconversion may be explained by this earlier high risk activity, since it is within the 6 months it may take antibodies to appear. However, given the current state of knowledge regarding seroconversion, the second individual's positive result can only be attributed to the oral sex practiced during the interval.

The discovery of an individual whose seroconversion can only be explained by oral sex indicates that this is a possible route of transmission, if perhaps a rare one. The participant was re-interviewed to determine the accuracy of the self-reported behaviors, and he claimed to have given up anal intercourse 24 months previously after breaking up with a lover. In each of the follow-up intervals, he reported being the receptive partner in oral sex with exposure to semen from several different partners. While this single case is notable for showing that this mode of transmission can occur, it also demonstrates its low level of risk since it only explains 1 out of 232 seroconversions found.

The San Francisco Men's Health Study (SFMHS) examined another large cohort of men to determine the risk of various sexual activities (Lyman, Winkelstein, Ascher, & Levy, 1986; Winkelstein, Lyman, et al., 1987; Winkelstein, Samuel, et al., 1987). Unlike the MACS study which used volunteers, the 1,034 participants in this cohort were chosen by area probability sampling from a section of San Francisco where the AIDS epidemic is most severe. Of all eligible single men aged 25-55 in selected households, 59% chose to participate in the study. Subjects were given a questionnaire, physical exam, and an HIV antibody test twice yearly.

Winkelstein, Lyman, et al. (1987) found 215 participants who reported no receptive anal intercourse during the previous two years. There was no statistically significant difference in prevalence of seropositivity between the 44 of these who reported no oral sex and the 171 who did practice it. Therefore, the authors assumed that any infection in this group was due to receptive anal intercourse two or more years earlier, rather than recent oral sex or insertive anal intercourse.

Implications of Cohort Studies for Oral Sex

Despite the rarity of HIV transmission through oral sex found in these cohort studies, such transmission may still occur. The studies examined populations at a time and place where high risk behaviors were very common. Most subjects participated in anal intercourse, and this was assumed to be the mode of transmission even if oral sex also was practiced. Since it was already believed that anal sex was the primary route of infection, individuals who also practiced oral sex were not more carefully examined to determine which activity was the actual source of infection.

Mayer and DeGruttola (1987) explain that the cohort studies did not have large enough samples "to assess the relative efficiencies of oral and anal contact or to infer that repeated oral intercourse with an infected partner is unlikely to transmit infection." They point out that even if oral and anal intercourse were of equal efficiency, only 6% of the 95 seroconversions of the MACS study would fall among the 147 of 2,507 men who reported oral sex only (Kingsley et al., 1987). If oral sex were only 10% as efficient, only 0.6% of the 95 would be due to oral sex, so the expected number of cases would be less

than one. Therefore, the cumulative risk from oral sex may be high and still not be detectable in these cohort studies.

Case Reports of Oral Sex Transmission

Since the large cohort studies found little or no evidence of a statistical association between HIV transmission and oral sex, this activity has been considered probably safe or low risk. However, a few such cases of transmission have been reported in the literature. While the individuals have not been examined in experimental studies to quantify the relative risk of oral sex, the existence of these cases does indicate that some risk exists.

Perhaps the most carefully examined cases of transmission through oral sex were found by the San Francisco Clinic Cohort Study (Lifson et al., 1990). A total of 6,705 homosexual and bisexual men were originally recruited between 1978 and 1980 for studies of hepatitis B. Men were interviewed annually and received a physical exam including an HIV antibody test.

Two men with no risk behaviors other than oral sex were found to have seroconverted, after having at least three negative tests in 2 years. Both reported no insertive or receptive anal intercourse for at least 5 years, as well as no other risk factors such as intravenous drug use. The first subject reported a variety of episodes of insertive and receptive oral sex with ejaculation, including some with a partner known to be HIV positive. He also routinely used nitrites during sexual intercourse, and reported a history of periodontal disease. The second subject reported having 400 sexual partners during the 11 month interval between negative and positive tests, including approximately 900 episodes of receptive oral sex with ejaculation. At least one partner was known

to be infected, and the subject also reported use of inhaled nitrites as well as less frequent use of marijuana and alcohol. The second subject also reported participating in oral-anal contact 20 times in the interval.

Lifson et al. (1990) concluded that infection probably took place during receptive oral intercourse with ejaculation due to exposure to semen, despite oral-anal contact in one case and contact with saliva during insertive oral sex in both. Both men had gingival recession, but its significance is unknown since this was common among the men in the study, most of whom were age 35 or older. Nitrite inhalants may also play a biological role in aiding transmission, although more likely they are merely associated with social or emotional factors leading to higher risk behaviors.

Another case of HIV transmission through oral sex was reported by Mayer and DeGruttola (1987). The Fenway Community Health Center in Boston followed 290 men who initially tested negative for HIV antibodies. Of the eight seroconversions in the group, one appears to have resulted from oral exposure to semen. The man who seroconverted had three previous negative tests before the first positive result in 1987. He reported no anal intercourse since 1982, but did frequently engage in oral sex with a partner known to be HIV infected.

A group of Paris doctors reported five possible cases of transmission (Rozenbaum et al., 1988). A cohort of homosexual male volunteers was tested every 3-12 months and interviewed about sexual practices. Participants were interviewed repeatedly by a second physician if seroconversion occurred, to confirm the self-reported behaviors. Oral sex was assumed to be the route of

transmission for five individuals, since they denied anal intercourse for 3 months prior to seroconversion.

While this group of cases seems notable, some of the individuals may have been infected by activities other than oral sex. Each of the five individuals denied any other high risk behavior for the previous 3 months, but it is possible that activities performed months earlier could have been the cause of seroconversion due to the long time required for antibodies to appear. The mean time elapsed since the previous negative test was 5.4 months, meaning that individuals also could have been infected before the test. In addition, the results seem less probable because two of the subjects reported only insertive fellatio, a type of oral sex that is the least likely to cause infection due to a lack of contact with body fluids other than saliva. However, despite these limitations, at least one subject reported oral sex as his exclusive sexual practice, and therefore seems a reliable report of transmission by this means.

Statistical Association Between Oral Sex and HIV Transmission

A recent unpublished study found a surprisingly large number of individuals who reported seroconversion after practicing oral sex, and may in fact show the first statistical association (Gilden, 1990; Samuel, 1990; M. Samuel, personal communication, May 2, 1991). Participants were chosen from three San Francisco studies, including cases reported by the San Francisco Clinic Cohort Study. Out of 82 seroconverters, 13 engaged in receptive and insertive oral sex in the year before their first positive test. Condom use was inconsistent, and it is unknown whether sexual activities included contact with pre-ejaculate or ejaculate.

While the Samuel study gives a striking first impression, a number of limitations must be examined. First, the time period of possible infection was unclear. Only 4-5 of the 13 cases had absolutely no other risky activities in a "long time," about 8 in a "relatively short time" (such as 6 months perhaps), and perhaps 15-16 in the "immediately preceding period" (M. Samuel, personal communication, May 2, 1991). In addition, the author cautions that high risk practices such as anal intercourse may have been underreported since they are not socially acceptable. The study also lacked information on key co-factors that may affect transmission, such as presence of pre-ejaculate and ejaculate and knowledge of partner's HIV status.

The Samuel study used multivariate regression analysis to determine an association between oral sex and HIV transmission (M. Samuel, personal communication, May 2, 1991). Approximately three controls were matched with each seroconverter. Different analyses found either a strong or faint statistical association. These differences stem from problems in fitting the statistical model to the data in a valid fashion. The phenomenon of interaction and the problem of choosing appropriate controls caused difficulties. Despite the limitations of this study, it is important because it is the first research to hint at a statistically significant association. However, the author himself cautioned that this is only a "preliminary report" and emphasized that the "paramount importance of receptive anal intercourse" in transmitting HIV has not been challenged (Gilden, 1990).

Anecdotal Reports of Oral Sex Transmission

Some of the strongest evidence for transmission of HIV through oral sex is not in published studies, but rather in the experiences of AIDS service providers. The anonymous testing program in San Francisco provides results to roughly 200 clients per week, with 8.5% testing positive in the first half of 1990. A test site supervisor anecdotally reported about one male client every other week claiming that oral sex was his only risk behavior, with no other risky activities for a prolonged period (UCSF AIDS Health Project, 1991). A counselor with the Santa Clara County Health Department Early Intervention Project (EIP) reported seeing roughly 8-12 cases of transmission probably attributable to oral sex within the past 6 months (R. Ponessa, personal communication, April 30, 1991). While these reports depend on clients giving honest sexual histories despite social stigmas of high risk behaviors, their truthfulness is facilitated by the anonymity of test sites and the client's need for information when getting an HIV test.

Summary

Although large cohort studies have not provided proof of a statistical association between HIV transmission and oral sex, a number of case reports and a possible statistical association have indicated that transmission may occur in this fashion. However, further evidence is needed to support and clarify these findings.

Both the published and anecdotal case reports have left many unanswered questions about the oral sex activities and co-factors that may be necessary for infection to occur. Only one report has mentioned insertive oral

intercourse as risky (Rozenbaum et al., 1988), so further study may indicate whether this is a possible mode of transmission. Other studies are inconsistent in describing whether ejaculation during receptive oral sex is a key factor, since a number have only limited information about whether this occurred (Mayer & DeGruttola, 1987; Samuel, 1990). Finally, a number of risk co-factors such as use of nitrite inhalants and presence of lesions or gum disease have been identified as areas for further exploration (Lifson et al., 1990).

The study of HIV transmission through lower risk activities such as oral sex is still in an early exploratory phase. A more creative sampling technique is needed to examine HIV transmission through oral sex, since this phenomenon is overwhelmed by anal sex and difficult to detect in large cohort studies. Case finding of even a few individuals can provide more information about infection through oral sex. Such methodology allows identification of elusive cases and more thorough history taking to describe the full spectrum of sexual activities and co-factors which may play a role in HIV infection. Case finding research can identify the key variables in transmission, such as specific activities or co-factors that increase the risk. Such information can be used as the basis for both larger, more definitive studies and prevention education.

CHAPTER 3

RESEARCH OBJECTIVES, QUESTIONS, AND DEFINITIONS

This case-finding interview study of HIV-infected individuals was designed to meet two main objectives. First, it attempted to find individuals who appeared to have been infected with HIV through oral sex. Second, it identified the specific types of oral sex behavior and the co-factors which were associated with these cases, and therefore perhaps with increased risk.

The first objective involved a single research question. Could one or more HIV-infected individuals rule out other possible routes of HIV transmission and therefore identify oral sex as the probable mode of infection?

The definition of oral sex covers a variety of sexual activities between two men. This includes any contact of mouth and penis, regardless of contact with body fluids. The terms insertive and receptive oral sex differentiate the "passive" and "active" partners, respectively.

The second research objective involved questions about the variety of different activities and co-factors related to oral sex. Which activities and co-factors existed in the histories of each case of oral sex infection? Types of oral sex activity that were studied included:

- insertive oral sex
- receptive oral sex without exposure to pre-ejaculate or ejaculation
- receptive oral sex with exposure to pre-ejaculate
- receptive oral sex with ejaculation
- receptive oral sex with ejaculation and swallowing of fluids.

Co-factors were behaviors or conditions that may have facilitated or hindered transmission of HIV during oral sex. Co-factors that were explored included:

- history of dental or gum disease or problems
- presence of cuts or sores in the mouth
- history of sexually transmitted diseases (STDs), including those causing sores
- use of substances before or during sexual activity, including alcohol and nitrite inhalants ("poppers")
- number of sexual partners.

The research aimed to discover and describe the activities and co-factors present in each case of reputed oral sex infection.

The HIV status of each participant or sexual partner was defined by the self-reported results of any HIV tests taken. Testing commonly involves laboratory procedures that check for antibodies to HIV, rather than the virus itself. These antibodies can take from 6 weeks to 6 months to appear after infection, so there is a "window" period during which false negative results can occur.

HIV positive and seropositive refer to individuals who have received at least one positive HIV test result. HIV negative and seronegative indicate persons who have received only negative test results. An individual who has not been tested is considered to have unknown HIV status, not seronegative status. Seroconversion is indicated by a positive test after an earlier negative result.

METHODS

Cases of HIV transmission through oral sex are difficult to isolate in large cohort studies, since oral sex is less risky than activities such as anal or vaginal intercourse. This study used case finding methodology to discover and examine these elusive cases. In this early discovery phase of research on this topic, this study was designed to describe the phenomenon of oral sex transmission rather than measure it statistically.

Prior to any contact with potential respondents, an informed consent protocol was submitted to and approved by the Committee for the Protection of Human Subjects, Institutional Review Board, of San Jose State University. A copy of the approval notice and a sample consent form can be found in Appendix A.

Case Finding

Gay and bisexual men who believed that they were infected with HIV through oral sex were recruited to the study using advertising in the gay community and HIV/AIDS service organizations. Study subjects were limited to this population with high incidence of HIV infection to allow more focused outreach efforts. Asymptomatic, symptomatic, and AIDS diagnosed individuals were all included in the study. Individuals who volunteered to participate were then interviewed to learn more about this mode of HIV transmission.

Recruitment took place between November 1991 and February 1992. A variety of advertising strategies were used to recruit self-selected volunteers. Over 50 fliers were distributed to HIV service providers in Santa Clara and San

Mateo Counties, and professionals in these agencies were asked to refer clients. A sample flier appears in Appendix B. Fliers were also posted in lesbian, gay, and bisexual community centers in the area. A complete distribution list can be found in Appendix C.

Local newspapers and newsletters were a key component in advertising this study. To avoid the cost of paid advertisements, a letter to the editor (see Appendix D) was sent to all Bay Area gay community newspapers. A notice also was included in the "AIDSWEEK" column of *The San Francisco Examiner.* In addition, a number of organizations included announcements in their newsletters. Appendix E mentions the locations, dates, and types of notices in various publications.

All advertising requested the participation of individuals who believed they were infected with HIV through oral sex. The name and phone number of the principal investigator were included as a contact for volunteering or further information. The announcements and letters each stressed that all information would be kept confidential.

Sample Selection

Individuals who called about the research were screened to determine whether they fit the study criteria. In order to qualify for participation in the study, potential respondents had to be infected with HIV and certain that infection had occurred due to oral sex. Any caller with HIV who believed he was infected through oral sex was automatically included as a study subject without further screening. Anyone who did not meet the study criteria was given referrals to other sources of HIV/AIDS information, education, or services, as appropriate.

During the phone intake, subjects were given a overview of the topics covered by the interview. Confidentiality and informed consent were also explained at that point. Subjects were given a chance to ask questions or voice concerns. A two hour appointment for the interview was then scheduled, although all interviews took only 45 to 90 minutes. Study participants were requested to review diaries and other relevant records in advance.

Interviews

Interviews took place in a mutually agreed comfortable location. For some subjects it was more convenient to have the interview conducted in their home. Others preferred public locations such as restaurants to protect their anonymity.

Interviews began by obtaining the informed consent of participants. Subjects were given a written consent protocol to read, and this protocol was also explained by the interviewer. Two copies of the protocol were signed so that both the researcher and the participant could retain copies. Interviews were audio taped for accuracy and to allow later transcription. Each subject chose an alias to be used as the identifier on all written and audio records.

An outline and questions for the interview were designed by the researcher and reviewed by two Health Education Associates with the Santa Clara County Health Department AIDS Program. The structure and questions of the interview were tested in a dry run. A social worker with the Santa Clara County Health Department Early Intervention Program acted out the role of a study subject and gave feedback on the process.

All information was obtained from self-reporting during a single interview. No physical examinations or HIV tests were given. Medical records and the subject's health care professionals were not consulted by the interviewer.

The interview was structured to cover less sensitive topics first and gradually proceed to more personal areas. Appendix F contains an outline of the interview. The interview began with closed-ended questions that were used to learn the subject's reasons for participating in the study and basic personal information such as age. Subjects were also asked about HIV testing history and non-sexual risk behaviors.

Questions about sexual risk behaviors and risk co-factors were general and open-ended. This allowed subjects to cover the areas they considered most significant. Follow-up questions were more specific, and were used to paraphrase and reconfirm, elicit further details, and cover areas that had been omitted. For example, the discussion of sexual activities began with the general question "what makes you think you were infected with HIV through oral sex?" Following questions covered number of partners, condom use, and partner HIV status. In addition, a checklist of sexual activities was used to ensure that all possible modes of sexual transmission were discussed.

The interview concluded by asking the subject with whom he had discussed this possible mode of transmission prior to the study. This allowed the subject to share relevant discussions about this topic, as well as personal theories about transmission or HIV in general.

Appropriate referrals to services were given at the conclusion of each interview. Some individuals were given a copy of the AIDS Service Providers Network (ASPN) directory, if they lived in or near the geographic area covered

in that guide. Others were referred to service organizations such as Aris Project or Shanti Project, or to the San Francisco AIDS Foundation for educational resources.

Each participant was also given a gift bag at the end of the interview. These bags included condoms, lubricant samples, and postcards with safer sex messages. In addition, each individual received a gift certificate good for lunch for two at a local restaurant. None of these gifts or benefits were suggested during recruitment or pre-interview screening.

Analysis

Data collected in the interviews was analyzed continuously as it was gathered. Each interview was transcribed in detail and compared with notes taken during the interview to increase accuracy. Key information about each participant was graphed so that data could be more easily categorized. Through constant comparison, activities and co-factors present in each history were explored and new variables identified.

CHAPTER 4

RESULTS

Recruiting and Response

Advertising in the gay community and HIV/AIDS service organizations garnered a variety of responses. A total of 37 phone calls were received from individuals interested in the study. Some callers wanted to participate, while others called to ask questions or give advice. The primary goals of each call fell into a number of categories.

1) Information request - 8 calls.

   A number of people who engage in oral sex called with questions and concerns about the risk of this activity. Specific questions included inquiries about the risks of insertive oral sex, oral sex with women, bleeding gums, and kissing.

2) Offer of assistance or information - 4 calls.

   One caller volunteered to help with the study, since he was HIV negative and therefore did not qualify for participation. Others called with advice about the process or goals of the study. For example, one caller cited several journal articles on molecular biology and HIV. A women called to suggest that information be provided for women too. And one man stressed that the study should not be "sex negative," and argued that studies without statistics were worthless.

3) Referral of volunteer - 5 calls.

   A number of individuals called to find out more about the study prior to referring friends who were potential participants.

4) Ineligible volunteer - 6 calls.

   A number of HIV negative individuals who engage in oral sex called to share their stories. These callers wanted to participate in the study, act as a "control group," or just offer a different perspective. One woman was waiting for the results of an HIV test, and wanted more information about the study in case she found out she was infected with HIV. One man wished to participate in the study anonymously through a phone interview; however, screening revealed that he had not been tested for HIV or diagnosed with AIDS, but merely believed he had AIDS-related symptoms.

5) Lost to follow-up - 2 calls.

   Two callers left messages, but did not respond to follow-up efforts. Follow-up consisted of two phone messages to one individual and a letter to another.

6) Study participant - 12 calls.

   Any caller with HIV who believed he was infected through oral sex was scheduled for an interview.

Callers learned about the study from different sources of advertising. Some saw fliers or announcements, while other were referred by a friend or knew the principal investigator. The following list describes the different ways each of the 37 callers heard about the study.

1) Posted fliers

   Santa Clara County Early Intervention Project - 1 call

2) Newspapers

   The Sentinel - 8 calls

   San Francisco Bay Times - 7 calls

   Bay Area Reporter - 2 calls

   San Francisco Examiner "AIDSWEEK" - 1 call

3) Organization newsletters

   Center News (Billy DeFrank Center) - 2 calls

   Pages (Aris Project) - 3 calls

4) Referral from a friend

   Total - 4 calls

   Note: While five individuals called with the goal of referring a friend, only four of these friends chose to call and participate.

5) Personal contact with principal investigator

   Total - 1 call

6) Unknown

   Total - 8 calls

The 37 phone calls about the research study yield a total of twelve participants. These individuals learned about the study from the following sources.

1) Newspapers

   The Sentinel - 3 participants

   San Francisco Bay Times - 2 participants

   San Francisco Examiner "AIDSWEEK" - 1 participant

2) Referral from a friend

   Total - 4 participants

3) Unknown

   Total - 2 participants

Study Sample

All twelve participants interviewed for the study were gay and bisexual men. Eleven self-identified as "gay" or "homosexual," and one as bisexual. Eleven subjects were white and one was Latino. Participants ranged in age from 25 to 63 years old, with a mean of 46.7 years and a median of 50 years. A summary of study participants appears in Table 1.

Ten of the twelve participants were residents of Northern California. One interview was conducted in-person on the East Coast. The final interview was conducted over the phone with an individual in Southern California.

Defining Categories

Participants were grouped into three categories, based on whether they could rule out other possible routes of HIV infection besides oral sex. Alternative means of transmission that were explored were blood contact, needle sharing, and anal or vaginal intercourse. These alternative means were defined as follows:

1) Blood contact included receiving blood or blood products, as well as occupational exposure to blood.

2) Needle sharing included any behaviors that shared needles, including but not limited to injection drug use. For example, subjects were also asked about needles used for ear piercing, tattooing, and steroids.
3) Anal and vaginal sex included any sexual intercourse without use of a condom or when a condom broke.

Participants were categorized as "cases of oral sex transmission" if they could rule out alternative routes of HIV infection. In other words, an individual was considered a case of oral sex transmission if he fit one of the three following criteria:

1) The subject did not at any time participate in any activity that was one of the alternative means of transmission.
2) All activities that were alternative means of transmission preceded the subject's most recent negative HIV test result by at least six months. This six month interval is the upper bound on the time it takes after infection to seroconvert and show up positive on an HIV test.
3) All activities that were alternative means of transmission occurred before 1978. This date has been used as the baseline for such studies as the San Francisco City Clinic cohort (Jaffe et al., 1985). In addition, AIDS case reporting to the Centers for Disease Control began in that same year (Selik, Haverkos, & Curran, 1984).

This category, in which subjects can rule out all other possible routes of infection, is referred to as cases of oral sex transmission or "YES."

The opposite category, labelled "NO," was made up of individuals who could not rule out other high risk activities. In other words, these individuals engaged in other high risk activities since 1978 which were alternative means

of transmission. In addition, these individuals either had never had a negative HIV test, or the risky activities were more recent than six months prior to the last negative test result.

A middle category, called "LIKELY," falls between the cases that definitely ruled out alternative means and those that definitely had other high risk behaviors. This group was defined as the cases that could rule out all but a few high risk activities. In addition, all of these high risk activities or potential modes of exposure were with a single individual. This classification is subjective, since perhaps even a single alternative activity should place these cases with the "NO" category. However, the "LIKELY" category has been included anyway due to its potential usefulness.

Categorizing the Sample

The 12 study participants were distributed across the three categories: YES, NO, and LIKELY cases. Five participants were in the "YES" category, four were "NO," and the remaining three were categorized as "LIKELY" cases. A summary of the study participants and their assigned categories of oral sex transmission can be found in Table 1.

Table 1

Summary of Interview Subjects

SUBJECT NUMBER AND ALIAS	AGE	RACE	SEXUAL ORIENTATION	ASSIGNED ORAL SEX TRANSMISSION CATEGORY
#1 Ralph	49	Latino	Gay	YES
#2 John	51	White	Gay	NO
#3 Larry	52	White	Gay	NO
#4 Wes	29	White	Gay	NO
#5 Alan	61	White	Gay	YES
#6 Jay	42	White	Gay	NO
#7 Tom	54	White	Gay	LIKELY
#8 Tobie	55	White	Bisexual	LIKELY
#9 David	25	White	Gay	LIKELY
#10 Skip	63	White	Gay	YES
#11 Rick	44	White	Gay	YES
#12 Bob	35	White	Gay	YES

Five of the twelve participants ruled out alternative means of HIV infection and were classified in the "YES" category as cases of oral sex transmission. A summary of these cases and the possible alternative routes of transmission can be found in Table 2. None of the five cases had received blood in the past 30 years. Only one (Rick, subject #11) had used a needle and this was only on

one occasion in 1977. None had engaged in vaginal intercourse. And none had participated in anal intercourse that would put them at risk of HIV transmission.

Table 2

Alternative Routes of Infection for Cases of Oral Sex Transmission

SUBJECT NUMBER AND ALIAS	BLOOD CONTACT	NEEDLE SHARING	SEXUAL INTERCOURSE
#1 Ralph	No blood since he was 19 (30 years).	No needle use.	No receptive anal sex. Insertive eight times with condom. No rimming or fingering.
#5 Alan	No blood in 40 years.	Needles used in doctor's office only.	Last anal sex was 25 years ago. Fingered some partners. No rimming.
#10 Skip	No blood.	No needle use.	No anal sex since late 1970s. Fingering rarely. Rimming a few times per year.
#11 Rick	No blood.	Needle use once in 1977.	Last receptive anal sex in 1976. Insertive anal sex in 1986, four years prior to HIV negative test. No rimming or fingering.
#12 Bob	No blood.	No needle use.	Only one partner for five years. Last anal sex 1.5 years prior to HIV negative test. Fingering. No rimming.

While all five cases of oral sex transmission mentioned participating in anal sex at some point, none did so in a way that could have been the route of HIV infection. Alan (subject #5) had not had anal sex in 25 years. Three cases only had anal sex years prior to HIV negative tests: Skip (subject #10) stopped having anal sex at least six years prior to two HIV negative tests, Rick (subject #11) at least four years prior, and Bob (subject #12) at least one and a half years earlier. Ralph (subject #1) reported a number of recent instances of insertive anal sex, but emphasized that it was "always protected, if I'm a top [insertive partner]. Always, I've never done it any other way."

Cases explained their personal reasons for not continuing anal sex. One (Alan, subject #5) mentioned that it was a frequent activity when he was younger. However, as he got older he "eased off on that. For one thing I got more overweight and I wasn't physically attractive and I just sort of dropped the whole idea of having anal sex and got more and more into oral sex." Rick (subject #11) described his thoughts after having anal intercourse the last time. "It was just something that I really didn't enjoy doing, and I didn't do it that often because I wasn't into it and didn't relax. And I just thought, I'm not going to leave this option open anymore."

Questions were asked about other sexual activities, although only anal sex was considered a high risk alternative route of transmission. Only one of the five cases (Skip, subject #10) reported any oral-anal contact ("rimming"), and he reported that it was a rare behavior. Three of the five cases also reported inserting a finger into the anus ("fingering"), another sexual activity that has not been shown to be risky for HIV transmission. A number of cases were

involved in activities considered probably safe, such as kissing and mutual masturbation.

Three individuals were classified as "LIKELY," since they could rule out most but not all alternative high risk activities. In each case, the men had participated in unprotected anal or vaginal sex with a single individual of unknown HIV status. None reported risks from blood contact or needle sharing. A summary of likely cases appears in Table 3.

Table 3

Alternative Routes of Infection for Likely Cases of Oral Sex Transmission

SUBJECT NUMBER AND ALIAS	BLOOD CONTACT	NEEDLE SHARING	SEXUAL INTERCOURSE
#7 Tom	No blood.	No needle use.	Receptive anal sex once in late 1970s. Insertive anal sex and fingering two to three times, as recent as 1985, with one partner.
#8 Tobie	Gave blood 15 years ago. No other blood contact.	No needle use.	Vaginal sex frequently with three women: two known HIV negative and one unknown status. No anal sex or rimming.
#9 David	Believed he may have received blood during an operation, but not indicated in medical records.	No needle use.	No receptive anal sex. Insertive anal sex without ejaculation, sometimes unprotected, with 20-25% of 60-90 total partners. All but one unprotected partner known HIV negative.

Each likely case of oral sex transmission identified unprotected anal or vaginal intercourse with a single male or female partner of unknown HIV status. Tobie (subject #8) engaged in unprotected vaginal intercourse with three women, two of whom were known to be HIV negative. Tom engaged in insertive anal sex with one man. David (subject #9) engaged in insertive anal intercourse with a number of partners; however, all but one partner in unprotected anal sex were known to be uninfected with HIV.

Four study participants could not rule out other high risk activities and were classified as "NO," or unlikely to have been infected with HIV through oral sex (see Table 4). All four mentioned a number of instances of unprotected anal sex, either insertive, receptive, or both. For three subjects, anal sex was with multiple partners. The fourth (Wes, subject #4) reported unprotected anal sex with a partner known to be HIV infected. In addition, one individual (Jay, subject #6) identified needle use, but claimed not to have shared needles.

Table 4

Alternative Routes of Infection for Cases Not Infected Through Oral Sex

SUBJECT NUMBER AND ALIAS	BLOOD CONTACT	NEEDLE SHARING	SEXUAL INTERCOURSE
#2 John	No blood.	No needle use.	No receptive anal sex. Insertive anal sex without condom one time each with five partners. Insertive anal sex with one partner 1986-89: no condom twice, broke five or six times.
#3 Larry	No blood in 30 years.	No injection drug use. Ears pierced in 1989.	No receptive anal sex in 30 years. Insertive anal sex with different partners roughly once per week, ejaculation only once, sometimes with condom. Fingering.
#4 Wes	Operation in early 1980s.	No needle use.	Two partners in six months prior to seroconversion. Anal sex with condom with one partner. Anal sex with HIV positive partner, including two or three times without condom or ejaculation.
#6 Jay	No blood.	Used but never shared needles through 1987.	Anal sex with a variety of partners, mostly insertive, mostly without condom or ejaculation.

Oral Sex Activities

The five cases of oral sex transmission each participated in different activities. The types of activities and numbers of partners are reported in Table 5. All five cases engaged in receptive oral sex. Ralph (subject #1) was only rarely exposed to pre-ejaculate. The other four cases performed oral sex to ejaculation, including swallowing ejaculate in some cases. The number of partners for oral sex ranged from one (Bob, subject #12) to an average of 20 contacts per week (Rick, subject #11).

Ralph (subject #1) was unique among the five cases in reporting exposure to pre-ejaculate only, with receptive oral sex never proceeding to ejaculation. When asked if he was ever exposed to ejaculate, he mentioned "I think one time in my life have I ever had that happen." However, he clarified that "that wasn't even ejaculation, that must have been pre-cum." Ralph described his sexual activity as "not sucking to the experience of what I've seen of other men enjoying that. . . . I didn't go that far having them ejaculate."

Table 5

Oral Sex Activities For Cases of Oral Sex Transmission

SUBJECT NUMBER AND ALIAS	ORAL SEX ACTIVITIES	NUMBER OF PARTNERS
#1 Ralph	Kissing. Receptive oral sex (50% of partners). Exposure to pre-ejaculate twice.	12-15 partners in year before seroconversion.
#5 Alan	Rarely insertive oral sex. Receptive oral sex, mostly with ejaculation. Used condom twice.	Up to 15-20 contacts per week for 20 years.
#10 Skip	Receptive oral sex with ejaculation and swallowing.	Average 50-100 partners per year. With person with AIDS for 6-9 months, twice a week.
#11 Rick	Receptive oral sex. Receptive oral sex with ejaculation and swallowing (50% of partners). Used condom with <1% of partners.	Average 20 partners per week.
#12 Bob	Receptive oral sex (licking) without exposure to pre-ejaculate. Receptive oral sex with ejaculation once.	One partner for five years.

The three likely cases of oral sex transmission also participated in a variety of activities, as summarized in Table 6. All engaged in receptive oral sex, but only Tom (subject #7) normally performed receptive oral sex to

ejaculation. For these three likely cases, the number of partners for oral sex ranged from a total of 60-90 to an average of 6-10 per day.

Table 6

Oral Sex Activities For Likely Cases of Oral Sex Transmission

SUBJECT NUMBER AND ALIAS	ORAL SEX ACTIVITIES	NUMBER OF PARTNERS
#7 Tom	Receptive oral sex with ejaculation. Receptive oral sex on persons who had just had anal sex (occasionally).	Average 6-10 contacts per day.
#8 Tobie	Receptive oral sex without ejaculation. Receptive oral sex with ejaculation but no swallowing (once).	Total of 50-100 partners.
#9 David	Insertive oral sex (80% of partners). Receptive oral sex without ejaculation (40-50% of partners).	Total of 60-90 partners. With HIV positive person 3 years, sex twice a month.

Oral Sex Risk Co-Factors

The five cases of oral sex transmission also varied in the risk co-factors that were present. Co-factors that were explored included history of sexually transmitted diseases, dental and gum condition, substance use, and history of cuts or sores in the mouth. A summary of these co-factors for the five cases appears in Table 7.

Table 7

Risk Co-Factors For Cases of Oral Sex Transmission

SUBJECT NUMBER AND ALIAS	SEXUALLY TRANSMITTED DISEASES	DENTAL AND GUM CONDITION	SUBSTANCE USE	CUTS OR SORES IN MOUTH
#1 Ralph	None.	Gum disease including bleeding gums. Intermittent and continuing problem.	No substances.	Some canker-sores.
#5 Alan	Gonorrhea several times and Syphilis, all about 30 years ago.	Unaware of gum problems until after HIV positive. No pain, but some bleeding. Four recent cavities.	Moderate drinker - about one glass a week. No drug use except prescription.	None noticed.
#10 Skip	Gonorrhea, most recently in early 1980s. Crabs.	Good dental care, including cleaning three times a year, did not reveal any problems. Gums retracting since HIV positive.	Occasional alcohol, not related to sex. Doesn't like poppers.	Maybe sore throat during sex.
#11 Rick	Hepatitis in 1970 and 1976.	No dental visits since about 1982. Gum problems years prior to seroconversion. Filling fell out and bled shortly before first HIV positive test.	No substance use in a long time. Doesn't like poppers.	None noticed.
#12 Bob	Chlamydia in 1981.	Had gum recession five years ago. Now flosses daily, including once immediately prior to oral sex.	Occasionally a drink before sex. No poppers or drug use.	None noticed.

Four of the five cases of oral sex transmission mentioned a history of sexually transmitted diseases. However, all of these diseases occurred many years prior to the time of HIV infection. Three subjects mentioned drinking alcohol occasionally, but all reported not using any drugs including nitrite inhalants ("poppers"). Ralph (subject #1) mentioned having occasional cankersores, but none of the cases remembered or mentioned any particular cuts or sores in the mouth prior to sexual activity.

Various dental problems or bleeding in the mouth were common to four of the five cases of oral sex transmission. Only Skip (subject #10) lacked any such problems. Two individuals mentioned gum disease including bleeding gums (Ralph, subject #1; Alan, subject #5). Ralph said "I've had gum disease for a period of time. As I'm getting older, I'm having to really take care of my teeth." Similarly, Alan mentioned that "I have had gum problems, and some bleeding of the gums . . . which I think may have been a contributory factor in my getting of this." Rick (subject #11) also had gum problems for a period of time yet remained HIV negative until recently; however, two to three months before his first HIV positive test he had a filling fall out and bleed.

Bob (subject #12) mentioned that he had reduced problems of gum recession through regular daily flossing, yet he connected his HIV infection to gum problems. He believed that he could narrow the exact time of his HIV infection to one specific occasion of oral sex. His only instance of receptive oral sex with ejaculation immediately followed brushing and flossing. As he described, "often times if I floss over vigorously I tear a gum." On this particular morning, "I brushed rather vigorously and flossed. And I don't recall seeing

blood, but it would not have been unusual for me to have cut the gum a little." This occasion was two months after an HIV negative test and four months prior to his first HIV positive result.

The three likely cases of oral sex transmission also each exhibited different risk co-factors. A summary of the co-factors for these likely cases appears in Table 8.

Table 8

Risk Co-Factors For Likely Cases of Oral Sex Transmission

SUBJECT NUMBER AND ALIAS	SEXUALLY TRANSMITTED DISEASES	DENTAL AND GUM CONDITION	SUBSTANCE USE	CUTS OR SORES IN MOUTH
#7 Tom	Hepatitis in 1975. Syphilis in 1978.	Good condition, nothing unusual. Visits dentist twice a year.	Stopped using alcohol and substances in 1983. No poppers used in 5 years.	Often had oral sex to point where mouth was raw.
#8 Tobie	Hepatitis in 1981. Herpes blisters on tongue around time of HIV diagnosis.	Root canals. Gum disease in a back molar created a separation, but no bleeding.	Used poppers one or two times.	None noticed.
#9 David	None.	No dental visits for 3 years prior to HIV positive test. Treated for gingivitis, although never noticed bleeding.	Drank alcohol. No poppers. Stopped using drugs 7 years ago.	None noticed.

Two of the three likely cases reported a history of sexually transmitted diseases; however, as with the cases of oral sex transmission, the diseases all predated HIV infection by a number of years. Two subjects reported a history of substance use (Tom, subject #7; David, subject #9), but had discontinued this behavior years before infection.

As with the cases of oral sex transmission, the likely cases reported a variety of dental or gum problems. Tom (subject #7) had a good dental condition, but often had oral sex to the point where his mouth was raw or the activity was causing sores. He described that he "wouldn't stop until my mouth was so sore I couldn't do it." David (subject #9) was treated for gingivitis. And Tobie (subject #8) mentioned gum disease in a back molar that created a separation between the gum and tooth. He mentioned that "there was no blood involved as such . . . but I was aware that I had a kind of a damaged condition related to the gum line." He wondered "if that was like what was referred to as open cuts in the mouth and sores and stuff like that."

Sources of Information About the Risk of Oral Sex

Although not formally identified as a research question, an interesting issue emerged during the interviews. Study participants mentioned that they had engaged in oral sex because they had heard it was a safe or very low risk activity. This information came from three main sources: reports of scientific research, opinions of friends or acquaintances, and current community norms and practices.

Two subjects believed that oral sex was safe because they had heard of studies that indicated that this was the case. Rick (subject #11) shared that he

knew "there were some other studies done somewhere in France and maybe some in the U.S. that they thought oral sex was OK, safe." It is unclear to which research he was referring and he seemed unfamiliar with the exact results. However, based on the limited information he had obtained, he believed that oral sex was basically safe "unless your mouth is not in great shape, possibly." Alan (subject #5) seemed more familiar with the scientific literature, having interviewed researchers and AIDS educators to prepare an article for a gay newspaper. He learned that "as far as they knew, they could find no correlation between oral sex and AIDS." In retrospect, he suspected this may have been because "they weren't asking the right questions early in the research" rather than merely because of a low relative risk of oral sex. However, at the time he felt encouraged to continue having oral sex after hearing about these studies and finding that "the Canadian government puts out a pamphlet. . . . It basically says if you feel like having oral sex go ahead and do it because the risk is minimal."

Opinions of friends and acquaintances were another source of the belief that oral sex poses little risk of HIV transmission. When Ralph (subject #1) told an HIV support group that he was infected through oral sex, another group member argued that he "really must be one of the 25 people in the country who've gotten it orally." David (subject #9) said his knowledgeable friends believed that oral sex transmission was plausible, but other friends "outright denied it, [and] still to this day don't believe it, no matter what I tell them." Similarly, Skip (subject #10) has a number of friends who don't know he is HIV positive and "who tell me all the time that I can't possibly get it orally." When asked if he ever contradicted this impression, he merely laughed and said that

he had "felt the same thing." Perhaps most striking, Tom (subject #7) heard the same message about the safety of oral sex from his doctor. When he received his HIV positive test result and told his physician that he didn't have anal intercourse, the reply was a surprised "well, how did you get it?"

Community norms and practices among gay and bisexual men also send the message that oral sex is a low risk activity. Wes (subject #4) shared that "the consensus was, at least in the general gay population, that you probably couldn't get it that way." According to Alan (subject #5) this belief is demonstrated by people who are performing unprotected oral sex and are "just willing to take the chances because they think they're so minimal." This attitude is reinforced by some community institutions; Alan understood that these norms are also "true of the sex clubs. . . . They advertise 'we only have safe sex', but they say safe sex includes oral sex." Tobie (subject #8) described that his partners were "very free about attempting to initiate oral sex" and he had to say explicitly "no, I think this is controversial." Bob (subject #12) also found that with his partners "it's safe because I insist that's it's safe. Most other people don't much care." In other words, due to community norms which imply that oral sex is safe or very low risk, subjects found that their partners would not initiate safer practices such as condom use or discussions about the safety of their activities.

CHAPTER 5

DISCUSSION

Cases of Oral Sex Transmission

Five of the twelve study participants appear to be cases of oral sex transmission of HIV. Each of these individuals ruled out alternative routes of infection, such as blood contact, needle use, and anal or vaginal intercourse. These cases provide some evidence that oral sex is a possible, if rare, mode of HIV transmission. However, these results do not quantify the risk of oral sex.

As in earlier research, this study assumed that individuals who engaged in both unprotected anal sex and oral sex were probably infected during anal intercourse. The Multicenter AIDS Cohort Study (Detels et al., 1989; Kingsley, et al., 1987) and other studies clearly demonstrated that anal sex is a high risk activity for HIV transmission. Therefore, four study participants who engaged in anal sex with either multiple partners or known HIV positive individuals were probably not cases of oral sex transmission.

Three study participants were categorized as likely cases of oral sex transmission. While each had engaged in anal or vaginal intercourse with a single partner of unknown HIV status, they participated in oral sex more frequently. Unlike earlier research, the possibility of oral sex transmission was not ruled out simply due to a single high risk sexual activity such as anal sex. Since oral sex was a probable route for these individuals, analysis of these cases may provide support to other data on oral sex transmission.

Oral Sex Activities

All five of the cases of oral sex transmission, as well as all three likely cases, participated in receptive oral sex. Therefore, this study provides no evidence that insertive oral sex poses any risk of HIV infection. While the possible risk cannot be ruled out, these results agree with earlier case reports in the literature that have indicated a risk from receptive oral sex only (Lifson et al., 1990; Mayer & DeGruttola, 1987). In addition, a lack of risk from insertive oral sex would be expected since saliva has never been shown to transmit HIV.

The cases and likely cases included individuals who had engaged in receptive oral sex both with and without ejaculation. Four of the five cases and one of the three likely cases reported receptive oral sex with ejaculation. Since this was the activity for the majority of the cases, ejaculation appears to be associated with a greater risk of HIV transmission. This is consistent with the fact that more fluid containing HIV would be transmitted with ejaculation than merely with pre-ejaculate present.

A single case (Ralph, subject #1) reported receptive oral sex with exposure to pre-ejaculate only. While this is an initial indication that this activity may be associated with HIV transmission, more research is certainly needed. Two of the three likely cases also reported only receptive oral sex without ejaculation, providing support that this possible association needs future clarification.

The possibility of receptive oral sex with exposure to pre-ejaculate as a route of infection points out a major gap in existing research. While semen has been shown to contain concentrations of HIV, no study has ever investigated pre-ejaculate. Laboratory studies are needed to examine whether and to what

extent HIV is present in pre-ejaculatory fluid. Such research may clarify the relative roles of pre-ejaculate and ejaculate in oral sex transmission of HIV.

Number of Sexual Partners

While some of the cases and likely cases reported a large number of sexual partners, there was a wide range among these individuals. Three cases reported averages of from 50-100 partners per year to 20 partners per week (1000 per year). The other two cases reported one and 12-15 partners during the period of seroconversion. Therefore, while a larger number of partners may increase the risk of HIV infection during oral sex, this quantity does not appear to be necessary for transmission to occur. Under the right circumstances, one partner may be adequate.

Dental and Gum Condition

Dental and gum problems, particularly those that involve bleeding, appear to be associated with cases of oral sex transmission. Four of the five cases reported some kind of problem, ranging from bleeding gums to losing a filling to flossing immediately prior to oral sex. Only one case (Skip, subject #10) did not mention any such problems. In addition, the likely cases provided further support that problems in the mouth may be associated with transmission. One likely case was treated for gingivitis and another had gum disease that created a separation. The final likely case didn't describe dental problems, but mentioned that he often performed oral sex to the point that his mouth was raw and he caused sores.

The condition of the mouth may be an important co-factor in oral sex transmission of HIV. Dental problems or other conditions leading to bleeding may open a route for HIV to enter the body. Assuming that bleeding were necessary and HIV could not enter the bloodstream through a healthy mouth would explain why many individuals participate in receptive oral sex and do not become infected. However, this study is not conclusive since one case reported no such dental problems.

While dental problems were common to many of the study cases, they are also quite frequent in the general population. One dentist described the rule of thumb of the American Academy of Periodontists to be that "90% or more of adults have some site with active gum disease" (V. Freckelton, personal communication, March 20, 1992). There is a whole spectrum of gum disease beginning with gingivitis, a thin line of redness at the gums which will open if probed. More serious problems can lead to bone destruction and mobility of the teeth. "You can assume that if there are teeth, then somewhere in the mouth there's a breech of the barrier" caused by gums abrading on tartar, biting yourself, or even normal eating of hard foods like French bread (V. Freckelton, personal communication, March 20, 1992).

A large scale study of over 15,000 employed adults examined the frequency of periodontal diseases including gingivitis, loss of periodontal attachment, periodontal pockets, and gingival recession (Brown, Oliver, & Loe, 1990). Gingivitis was present in 44% of the population, periodontal pockets in 13%, and loss of attachment in 13 to 99% of the group depending on the severity. In other words, some form of gum disease was present in a large portion of the this population. However, there are a variety of different types of

periodontal disease; further research is needed to determine the role each plays as a transmission co-factor.

While the apparent association of oral and dental problems with HIV transmission may be taken as a caution, the risk from oral sex does not disappear for those unaware of such problems. A number of the subjects did not discover dental problems until after their HIV diagnoses. As David (subject #9) described "I probably hadn't been to the dentist in three years . . . My gums never seemed to bleed . . . A lot of people just brush their teeth, and then notice that they're bleeding. But a lot of times you just can't see it."

Other Risk Co-Factors

Besides dental and gum condition, other risk co-factors did not appear to be associated with HIV infection through oral sex. While most cases and likely cases identified a history of sexually transmitted diseases, these conditions all preceded HIV infection by a number of years. Substance use also was not common. Some individuals reported moderate alcohol intake or previous drug use. Only two of the likely cases reported any earlier use of poppers; one had only done so once or twice and the other had discontinued using poppers five years earlier. Subjects also did not report any particular cuts or sores in their mouths, perhaps because these were too common or minor to merit attention.

Age of Study Participants

The mean and median ages of study participants were older than the national norm of the AIDS epidemic. By the end of November 1991, 137,084 cases of AIDS had been diagnosed in the United States among persons 39 or

younger (Centers for Disease Control, 1991). This number represents over 67% of total cases. With a median age of 50 years, the participants in this study were quite a bit older.

The advanced age of study participants may be explained by the influence of aging in weakening the immune system or otherwise increasing susceptibility to HIV. However, more likely other factors are responsible. Dental problems such as gum disease increase with age. For example, research on periodontal disease found that gingival recession was present in 20% of 18-24 year olds, but was found in nearly 84% of the 55-64 age group (Brown, Oliver, & Loe, 1990).

Participants in this study were self-selected in response to letters and fliers; older gay and bisexual men may be more likely to be integrated into the gay community and reading newspapers. Sexual behaviors also differ among generations. According to the Skip (subject #10), the oldest participant at 63, "oral sex was more the thing to do for people who are in my age bracket." He pointed out that "anal sex was not quite as popular as it became later on. And so people in my age bracket grew up not knowing, not being too involved in anal sex."

Self-Selection of Participants

Participants chose to volunteer for the study for a variety of reasons. Some volunteers felt that more information about oral sex transmission of HIV was needed or misinformation needed to be corrected. Others wanted to study this route of infection because they were surprised when they first tested HIV positive.

A number of subjects talked about the need for correct information about oral sex transmission. John (subject #2) described himself as "a crusader . . . that oral sex is unsafe." He chose to volunteer because "I've heard talks by HIV positive men that oral sex was OK. . . . And I'm sitting in the audience knowing that's the way I got it. So to me there's a false impression out there." Jay (subject #6) felt that misinformation was spread by professionals who didn't base their recommendations on science. He summarized their risk assessments as "whether it's safe or not we have to say that it's wrong because our morals outweigh our brains."

Some subjects were quite surprised when they first tested positive, after hearing for years that oral sex posed a low risk of HIV transmission. Tom (subject #7) was "fascinated by the topic because I was very surprised that I came up positive when my sexual practices are almost 100% oral." David (subject #9) mentioned "I've been reading books . . . that say getting HIV from oral sex is like getting hit by a bolt of lightening." He felt that "in the beginning they tried to hide it and said it's really difficult to get this disease. And it seems like every year it became a little less difficult to get."

All of the study participants felt that it was important to study oral sex transmission of HIV to avoid new infection. Perhaps John (subject #2) best summarized the situation. "I wish we knew more and had more information. I wouldn't wish this [HIV disease] on anyone."

Reasons for Incorrect Self-Selection

Four individuals volunteered for the study and were then ruled out when interviews uncovered alternative high risk activities. There are three main

reasons that these men believed they were infected through oral sex and chose to participate despite these possible other routes of infection. The reasons for volunteering can be summarized as denial, knowledge, and salience.

Some of the individuals who were ruled out were in denial about other possible modes of infection. Larry (subject #3) casually mentioned that during insertive anal sex "I haven't always used a rubber, but I hardly ever come inside anybody." Jay (subject #6) also ascribed to the myth that insertive anal sex is relatively safe, particularly without ejaculation. John (subject #2) described "always thinking for some strange reason that I couldn't possibly be infected since I wasn't the recipient." He added that "what really hit me when preparing for this [interview] is how much denial I was in over all those years about what was safe and not safe." While these individuals were well informed about HIV and AIDS, they spoke or acted as if unaware of some of their activities and the risks involved.

In some cases, knowledge about HIV led individuals with other risk factors to believe they were infected through oral sex. For example, Jay (subject #6) was aware of continuing severe gum problems to the extent that he could suck blood. Since he knew that HIV needs to reach the bloodstream for infection to occur, he assumed that this was the route of infection. As he described, "if you have to have semen to blood transmission, that is a puddle of semen in a pool of blood."

Salience of particular events is the last reason why some individuals incorrectly believed that oral sex was their major risk behavior. For Wes (subject #4), receptive oral sex only once involved ejaculation. Two days later he became sick with a variety of symptoms including indigestion. While these

symptoms were not necessarily HIV related, they did make the event quite salient in his mind. Therefore, he concluded he was infected from oral sex, rather than a number of occasions of unprotected anal sex with the same HIV positive partner.

Reliability of Cases

Participants in this study were highly motivated volunteers. Subjects were uncompensated and all reports were confidential, so there was no financial benefit or positive publicity as a result of coming forward. These men chose to be in the study to help the community and add to our knowledge about HIV/AIDS, as a number of subjects specifically mentioned.

Study subjects and their self-reported personal histories would be less reliable if they had hidden agendas in volunteering to participate. For example, volunteers could have gotten involved with the personal goal of proving or disproving the possibility of oral sex transmission of HIV. Subjects also could have participated to show that they had not engaged in stigmatized high risk behaviors. However, the interviews revealed that these potential problems did not appear to be the case.

The cases of oral sex transmission did not volunteer for the study to prove or inflate the risk of this behavior. While the participants who were infected by alternate activities exaggerated the risk of oral sex by incorrectly attributing their infection to this behavior, the cases of oral sex transmission did the opposite. In contrast to the excluded cases, most of those infected through oral sex continued to argue that it was a low risk behavior. According to one subject (Alan, subject #5) "if I had been having sex like once a month or once a

week . . . then the odds would have been greatly reduced and there would have been a minimal chance." Skip (subject #10) agreed that "I still feel it's a very unlikely means of transmission. The fact [is] that all those years had elapsed with me just going at it full scale and being negative until as late as I did."

The cases of oral sex transmission also did not volunteer for the study simply to demonstrate that they had not engaged in high risk behaviors. First, the study used aliases to protect the confidentiality of subjects; as a result, no participant could use the study outcome to illustrate an invented personal history. More importantly, the subjects did not hesitate to share a great deal of sensitive information about risky and other behaviors, often far beyond what was requested by the interviewer.

Study participants discussed a variety of potentially embarrassing or stigmatized experiences, such as tales of sexual activities in bathhouses and other anonymous sex environments. Interviews explored sexual histories in graphic detail, usually at the initiation of the participants. None of the cases of oral sex transmission denied participating in anal sex; they simply had not done so in a way that would explain their HIV infection. Therefore, subjects did not appear to be hiding potential high risk behaviors.

IMPLICATIONS

This discovery research on oral sex transmission of HIV raises a number of issues for education, counseling, and future research. The five apparent cases of infection through oral sex are evidence that this is a potential route of transmission. While these findings deserve some attention, their importance

should be viewed in the context of other research. This study does not contradict the large body of literature that has shown that vaginal and anal sex pose the greatest risk for HIV transmission.

Oral sex appears to be a possible, if rare, route of HIV transmission. While this activity is lower risk than anal or vaginal intercourse, community norms and practices indicate a belief that oral sex is almost completely safe. This incorrect impression may lead individuals to choose oral sex as a part of a personal risk reduction strategy. This study does not wish to take an anti-sex stance and encourage people to stop having oral sex altogether. However, the results of this study combined with future research in this important area may be able to provide more accurate information about the relative risk of oral sex. Such information can empower individuals to make informed choices about their sexuality.

These preliminary results found that receptive oral sex poses some risk of HIV transmission. However, this study gave no indication that oral sex can transmit HIV to the insertive partner. A larger case finding study may be able to demonstrate the risk from insertive oral sex, if a small risk does exist. However, this study does not show that such research, or more cautious behavior around insertive oral sex, are priorities at this time.

While the cases described by this study show a greater association and therefore greater risk of HIV transmission when receptive oral sex involves ejaculation, this result is at best preliminary. A majority of the cases reported oral sex with ejaculation, but one case and some likely cases described exposure to pre-ejaculate only. Until further research has explored this

distinction, education and counseling should point out that both activities may be potential modes of transmission.

Two kinds of research are crucially needed to clarify the role of ejaculation in oral sex transmission of HIV. First, lab studies can test pre-ejaculatory fluid to determine whether it contains HIV and in what concentration. Second, larger scale and broader case finding can examine whether cases of oral sex transmission without ejaculation make up a significant percentage of total cases.

Dental and gum condition was the only risk co-factor that appeared to be related to oral sex transmission of HIV. Various problems that involved bleeding in the mouth were associated with most of the cases and likely cases of oral sex transmission. Based on these results, individuals with bleeding gums or other dental problems should exercise additional caution when engaging in oral sex. However, these results do not indicate that individuals who have not identified such problems are free from risk. Not all persons with dental or gum problems are aware of these difficulties at the time. In addition, dental problems are quite frequent in the adult population; the apparent association with oral sex transmission of HIV may be spurious rather than an indication of a necessary precondition for infection.

This discovery research has revealed the co-factor of dental and gum condition as a key area for future work. There are a variety of different periodontal diseases as well as a number of other potential problems in the mouth. Future research should examine different types of oral diseases and problems to determine which if any appear to be associated with oral sex transmission of HIV.

While this study intended to look at oral sex transmission only, it also uncovered continuing denial about other types of sexual transmission of HIV. Four participants volunteered because they believed they were infected through oral sex, despite engaging in unprotected anal intercourse with multiple or HIV positive partners. A number of these men spoke of anal sex, particularly insertive or without ejaculation, without appearing to be aware or concerned that this is a major risk behavior. Apparently some members of the gay community still believe the myth that insertive anal intercourse is a low risk activity. There is an urgent need for education and counseling to correct this misinformation. These erroneous beliefs may lead to behaviors that outweigh oral sex in their impact on new HIV infection.

This study chose to interview only gay and bisexual men to allow a focused outreach and recruiting effort. While these results probably apply to anyone performing receptive oral sex on a man, either male or female, women have obviously been overlooked. With women having one of the fastest growing rates of HIV and AIDS, research on oral sex with women remains a key area to be explored in the future. Future studies can provide the basis for HIV prevention education and counseling that is specific to the needs and concerns of women. In addition, because the definition of AIDS is based on clinical symptoms of men, women with HIV in the United States are often mis-diagnosed. Information about HIV transmission to women is one important ingredient in obtaining better and more timely diagnoses for women with HIV.

It is surprising that this case finding methodology has not previously been used to examine low risk activities such as oral sex. Perhaps oral sex transmission was ignored because initial large cohort studies clearly

demonstrated that anal sex poses the greatest risk for HIV infection. However, with increasing questions and anecdotal reports from AIDS service providers and community members, this work seems overdue. Perhaps the reluctance stems from the sensitive and in-depth discussions about the broad range of sexuality that are a part of this methodology. Such resistance needs to be overcome to explore all the varieties of activities in which people are involved and from which they are at risk of contracting HIV.

This study may have raised more issues for future work than it has answered existing questions. Hopefully, this research will encourage more study of HIV transmission and human sexuality in general, and oral sex in specific. As more is learned about these important areas, this information can be used to improve education and counseling. Knowledge and prevention are the keys to stopping the spread of HIV.

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APPENDIX A: INFORMED CONSENT PROTOCOL

SJSU SAN JOSE STATE UNIVERSITY

A campus of The California State University

Office of the Academic Vice President • *Associate Academic Vice President* • *Graduate Studies and Research*
One Washington Square • San José, California 95192-0025 • 408/924-2480

To: Andrew A. Gans, Health Science
1555 W. Hillsdale Blvd.
San Mateo, CA 94402

From: Serena W. Stanford Serena W. Stanford
AAVP, Graduate Studies and Research

Date: October 16, 1991

The Human Subjects Institutional Review Board has approved your request to use human subjects in the study entitled:

"An Exploration of the Relationship of Oral Sex and HIV Transmission Among Gay and Bisexual Men"

This approval is contingent upon the subjects participating in your research project being appropriately protected from risk. This includes the protection of the anonymity of the subjects' identity when they participate in your research project, and with regard to any and all data that may be collected from the subjects. The Board's approval includes continued monitoring of your research by the Board to assure that the subjects are being adequately and properly protected from such risks. If at any time a subject becomes injured or complains of injury, you must notify Dr. Serena Stanford immediately. Injury includes but is not limited to bodily harm, psychological trauma and release of potentially damaging personal information.

Please also be advised that each subject needs to be fully informed and aware that their participation in your research project is voluntary, and that he or she may withdraw from the project at any time. Further, a subject's participation, refusal to participate or withdrawal will not affect any services the subject is receiving or will receive at the institution in which the research is being conducted.

If you have questions, please contact me at 408-924-2480.

CC: Kathleen M. Roe, Ph.D.

SJSU SAN JOSE STATE UNIVERSITY

A campus of The California State University

School of Applied Arts and Sciences • ***Department of Health Science***
One Washington Square • San Jose, California 95192-0052 • 408/924-2970

Agreement to Participate in Research
San Jose State University

Responsible investigator: Andrew A. Gans
Title of Protocol: An Exploration the Relationship of Oral Sex and HIV Transmission

I have been asked to participate in a research study that is investigating HIV transmission. The results of this study should further our understanding of the possibility of HIV infection through oral sex.

I understand that

1) I will be asked to participate in a one to two hour interview, to be conducted in my home or other location.
2) The possible risks of this study are minimal, and include only the emotional results of looking into personal and sensitive topics.
3) The possible benefits of this study to me include the satisfaction of adding to our knowledge of HIV disease as well as learning more about the disease myself.
4) No treatments are provided by this study, and no medical or other tests will be requested of me.
5) The results of this study may be published, but any information that can be identified with me will remain confidential and will be disclosed only with my permission.
6) I will receive no monetary compensation for my participation in this study.
7) Any questions about my participation in this study will be answered by Andrew Gans at (415) 341-1340. Complaints about the procedures may be presented to Dr. Kathleen Roe at (408) 924-2976. For questions or complaints about research subject's rights, or in the event of research-related injury, contact Serena Stanford, Ph.D. (Associate Academic Vice President for Graduate Studies and Research) at (408) 924-2480.
8) My consent is given voluntarily without being coerced. I may refuse to participate in this study or in any part of this study, and I may withdraw at any time, without prejudice to my relations with SJSU or any AIDS service or medical agency.
9) I have received a copy of this consent form for my file.

I HAVE MADE A DECISION WHETHER OR NOT TO PARTICIPATE. MY SIGNATURE INDICATES THAT I HAVE READ THE INFORMATION PROVIDED ABOVE AND THAT I HAVE DECIDED TO PARTICIPATE.

_____	_____	_____
Date	Subject's Signature	Investigator's Signature

APPENDIX B: SAMPLE ADVERTISING FLIER

ORAL SEX AND HIV

Are you infected with HIV (HIV+, ARC, AIDS)?
Do you believe you may have been infected
through oral sex?

Do you know someone who may have been
infected with HIV through oral sex?

I am conducting a study of HIV transmission
through the Department of Health Science
at San Jose State University.

The study involves a 1-2 hour interview.
All information is strictly confidential.

If you would like to participate,
or would like more information,
please call Andrew Gans at (415) 341-1340.

APPENDIX C: DISTRIBUTION OF FLIERS

Aris Project
Campbell, CA

Billy DeFrank Lesbian and Gay Community Center
San Jose, CA

Kaiser Hospital
Santa Clara, CA

Lesbian, Gay, and Bisexual Community Center
Stanford, CA

Pacific Graduate School of Psychology
Palo Alto, CA

San Jose State University Lesbian, Gay, and Bisexual Alliance
San Jose, CA

San Jose State University Student Health Center
San Jose, CA

San Mateo County AIDS Project
San Mateo, CA

San Mateo County Early Intervention Project
San Mateo, CA

Santa Clara County AIDS/HIV Consortium

Santa Clara County Health Department Early Intervention Program
San Jose, CA

APPENDIX D: LETTER TO THE EDITOR

As a safer sex educator, I seem to hear the same questions over and over. The one asked the most by gay and bisexual men: "Is oral sex safe?"

Ten years into the HIV/AIDS epidemic, you'd expect that answers would exist for such important questions. Yet the question keeps coming up, and it's still hard to know what advice to give. Partly this is because "oral sex" is a term covering a broad range of different activities - on men or women, swallowing or not, etc. More importantly, there has been very little research on the topic.

I am beginning a research project on this crucial question. The research is sponsored by the Department of Health Science at San Jose State University.

We are looking for gay and bisexual men with HIV disease (with or without symptoms or AIDS diagnosis) who believe they may have been infected through oral sex. The study involves a 1-2 hour interview. All information will be kept strictly confidential.

If you would like to participate, or would like more information, please call (415) 341-1340. You might be able to help find answers to the questions about oral sex. Thank you very much.

APPENDIX E: NEWSPAPER AND NEWSLETTER ADVERTISING

Pages
newsletter
Aris Project, Campbell
November 1991 — half page flier

The Sentinel
gay community newspaper, San Francisco
December 12, 1991 — letter to the editor
December 26, 1991 — letter to the editor

Our Paper
gay community newspaper, San Jose
December 18, 1991 — letter to the editor

San Francisco Bay Times
gay community newspaper, San Francisco
December 19, 1991 — letter to the editor

The Positive Side
newsletter
Santa Clara County Health Department Early Intervention Project, San Jose
Winter 1991-2 — announcement

Bay Area Reporter
gay community newspaper, San Francisco
January 2, 1992 — letter to the editor

San Francisco Examiner
newspaper, San Francisco
January 29, 1992 — announcement in "AIDSWEEK" column

Center News
newsletter
Billy DeFrank Lesbian and Gay Community Center, San Jose
February, March 1992 — half and quarter page ads

APPENDIX F: INTERVIEW OUTLINE

I. Introduction

Explain and sign consent form.

Request permission to tape interview.

II. Objectives

Explain my objectives.

Allow comments and questions.

Ask for reasons for volunteering.

III. Personal information

Ask for age, race, and sexual orientation.

IV. HIV status and testing history

Ask for current health status (symptomatic?, AIDS diagnosed?)

Ask for HIV testing history including dates and results of tests.

V. Non-sexual risk behaviors

Ask about history of blood transfusions or other blood contact.

Ask about needle use.

VI. Risk co-factors

Ask about history of sexually transmitted diseases.

Ask about oral hygiene and health including dental or gum problems.

Ask about use of substances including nitrite inhalants or alcohol with sexual activity.

VII. Sexual risk behaviors

Begin by asking "what makes you think you were infected by oral sex?"

Use follow up questions to cover variety of sexual activities:

- kissing, masturbation, vaginal sex, anal sex, watersports, activities involving blood, fisting, fingering, rimming
- source of sexual contacts, including relationships if any
- HIV status of partners (HIV-, HIV+, unknown)
- number of partners and episodes
- use of condoms (never, sometimes, always)
- most recent time when potentially at risk from this activity

VIII. Persons with whom transmission has been discussed

Ask about significant other, family, friends, caretaker, and health service professionals.

Ask about expected reactions and actual reactions of these individuals.

IX. Closing

Give gift bags.

Offer referrals and resources.

Offer that subject may see results at conclusion of study.

Ask subject to refer others for study.

Follow-up: Send thank you note if address known.